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7.3. Absorption of Light

Infrared Absorption Spectra of p-Type CdTe. (E) B. M. Vul, V. M. Sal'man, and V. A. Chapnin – 52 [67]
Interband Absorption in Heavily Doped Semiconductors. (T) E. G. Tsitsishvili – 70 [89]
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Optical Absorption Associated with Lattice Defects in CdTe Crystals. (E) N. V. Agrinskaya, E. N. Arkad'eva, and O. A. Matveev – 306 [370]
Investigation of the Infrared Absorption Spectra of $CdSnP_2$–$CdSnAs_2$ Solid Solutions. (E) R. K. Karymshakov and V. A. Radul – 333 [398]
Photoluminescence and Absorption by Vacancy-Donor Complexes in CdTe. (E) N. V. Agrinskaya, E. N. Arkad'eva, and O. A. Matveev – 347 [412]
Long-Wavelength Infrared Absorption in n-Type Ge due to the Interaction of Impurities. (E) A. I. Demeshina, R. L. Korchazhkina, N. N. Kuznetsova, and V. N. Murzin – 363 [428]
Excitation and Photoluminescence Spectra of GaS_xSe_{1-x} Crystals. (E) M. I. Karaman and V. P. Mushinskii – 464 [560]
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Infrared Absorption Spectra of Some $A^{II}B^{IV}C_2^V$ Crystals. (E) N. S. Boltovets, B. Kh. Mamedov, and É. O. Osmanov – 499 [596]
Investigation of the Absorption of Light by Carriers in Heavily Doped Silicon and Germanium. (E/T) L. N. Strel'tsov and V. V. Titov – 605 [715]
Absorption Coefficient of n-Type Indium Arsenide at Various Doping Levels. (E) Z. V. Chizhova, R. A. Radchenko, and I. I. Taubkin – 792 [935]
Intraband Transitions in the Valence Band of Indium Arsenide. (E) I. M. Nesmelova, K. Ya. Shtivel'man, N. S. Baryshev, B. P. Pyregov, I. S. Aver'yanov, and V. S. Andramonov – 1148 [1354]
Profile of the Fundamental Absorption Edge of Mercury Selenide. (E) V. V. Volkov, V. M. Bezborodova, V. P. Dmitriev, A. V. Vanyukov, and P. S. Kireev – 1234 [1443]
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7.4. Magneto-Optical Effects

Interband Faraday Effect in Doped Semiconductors. (T) E. G. Tsitsishvili – 386 [461]
Anisotropy of the Microwave Faraday Rotation in n-Type Ge Subjected to Strong Electric Fields. (E) S. N. Baranovskii, D. D. Berezikov, B. B. Gorlov, and A. M. Pogorel'skii – 492 [589]
Optical Polaron in a Magnetic Field. (T) A. A. Klyukanov and E. P. Pokatilov – 655 [776]
An Investigation of the Microwave Faraday Effect due to Hot Electrons. (E) D. D. Berezikov, A. M. Pogorel'skii, and S. N. Baranovskii – 657 [779]
Faraday Effect in Cadmium Telluride in the Infrared Part of the Spectrum. (E) V. V. Volkov, L. V. Volkova, and P. S. Kireev – 961 [1138]
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An Investigation of the Interband Faraday Rotation in n- and p-Type Gallium Arsenide. (E) L. Ya. Baklaev, A. N. Levkov, and Yu. Ya. Umrilov – 1730 [2015]
Intraband Faraday Effect in Thin Films of p-Type Lead Selenide and Telluride. (E) M. S. Kozyreva and N. B. Arzheukhova – 1862 [2172]

7.5. Excitons

Investigation Using Bound Exciton Spectra of the Behavior of Copper during Its Diffusion in Gallium Arsenide. (E) V. I. Safarov, V. E. Sedov, and T. G. Yugova – 119 [150]
Ionization of Mott Excitons in Parallel Electric and Strong Magnetic Fields. (T) B. S. Monozon and M. B. Pevzner – 390 [466]
Recombination Radiation of the Condensed Phase of Nonequilibrium Carriers in Germanium. (E/T) Ya. E. Pokrovskii and K. I. Svistunova – 409 [491]
Biexcitons in Germanium. (E/T) V. M. Asnin, A. A. Rogachev, and N. I. Sablina – 688 [808]
Exciton Mechanism of a Short-Wavelength Electroluminescence Peak of Gallium Selenide. (E) G. A. Akhundov and A. G. Bagirov – 805 [948]
Profile of an Exciton Luminescence Band Associated with an Excited Exciton State. (T) D. S. Bulyanitsa – 1081 [1273]
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8. EFFECTS OF RADIATION ON SEMICONDUCTORS

Distribution of Radiation Defects in Proton-Irradiated Gallium Arsenide. (E) V. D. Okunev, A. P. Mamontov, B. G. Zakharov, and B. S. Azikov – 80 [101]
Radiation Damage in Copper-Doped Gallium Arsenide. (E) A. S. Papeiko, É. E. Radovskii, V. F. Stel'makh, and V. D. Tkachev – 112 [142]
Energy Spectrum and Possible Nature of Defects Generated in n-Type CdTe by Bombardment with 1 MeV Electrons and with Thermal Neutrons. (E) A. A. Abramov, V. S. Vavilov, and L. K. Vodop'yanov – 219 [270]
Irradiation and Annealing of p-Type Germanium. (E) V. F. Stas' and L. S. Smirnov – 224 [276]
Low-Temperature Irradiation of Germanium with 28 MeV Electrons. (E) A. K. Abiev and N. A. Ukhin – 404 [484]
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Influence of Neutron Irradiation on the Diffusion of Zinc in Indium Arsenide. (E) B. I. Boltaks and É. P. Savin – 470 [567]
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Fine Structure of the "Red" Cathodoluminescence Band of β-SiC Irradiated with Fast Electrons. (E) I. I. Geitsi, A. A. Nesterov, and L. S. Smirnov – 744 [879]
Features of the Photoconductivity Spectra of p-Type Si Irradiated with Fast Electrons. (E) I. P. Akimchenko, V. S. Vavilov, and A. F. Plotnikov – 873 [1020]
Investigation of γ-Radiation Defects in High-Purity Germanium. (E) N. A. Vitovskii, M. Maksimov, and T. V. Mashovets – 880 [1030]
Irradiation of Synthetic Diamonds with Fast Electrons. (E) N. N. Gerasimenko, L. V. Lezheiko, Yu. A. Litvin, and L. S. Smirnov – 905 [1064]
Transmission of Electrons through Si and Ge Films. (E) A. M. Lyubomirov and D. B. Pozdneev – 945 [1117]
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Influence of Neutron Irradiation on the Reflection Coefficient of Gallium Arsenide. (E) N. V. Baramidze and N. I. Kurdiani – 1014 [1194]
Influence of Irradiation on the Principal Characteristics of a Gallium Arsenide Laser Excited with an Electron Beam. (E) O. V. Bogdankevich, V. S. Vavilov, V. A. Danilychev, V. V. Kalenin, and I. V. Kryukova – 1027 [1209]
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8.1. Ion Implantation Doping

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Investigation of the Hall Effect in p-Type Semiconducting Diamond Doped with Boron by the Ion Implantation Method. (E) V. S. Vavilov, M. I. Guseva, E. A. Konorova, and V. F. Sergienko – 12 [17]
Calculation of the Range of Ions Implanted in Semiconductors. (T) V. S. Kessel'man – 183 [228]
Low-Resistivity Layers Produced by Ion Bombardment in Semi-insulating Gallium Arsenide. (E) V. M. Zelevinskaya, G. A. Kachurin, N. B. Pridachin, and L. S. Smirnov – 258 [317]
Doping of Germanium by the Ion Bombardment Method. (E) V. G. Volod'ko, E. I. Zorin, P. V. Pavlov, and D. I. Tetel'baum – 691 [812]
Implantation of 10-80 keV Lithium Ions in Diamond. (E) V. V. Galkin, V. V. Krasnopevtsev, and Yu. V. Milyutin – 709 [837]
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Fast Surface States on Silane-Treated Germanium. (E) A. V. Rzhanov and T. I. Kovalevskaya – 261 [321]
Influence of Adsorption of Some Molecules on the Electrical Properties of a Real Surface of Germanium. (E) S. N. Kozlov, Yu. F. Novototskii-Vlasov, and V. F. Kiselev – 288 [353]
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Theory of a Surface Oscillistor. (T) I. A. Gilinskii – 313 [377]
State of the Surface of Germanium and Silicon under a Film of SiO_2 Deposited in the Plasma of a High-Frequency Gas Discharge. (E) P. V. Pavlov and Yu. S. Popov – 472 [569]
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Helical Instability in Germanium Subjected to Strong Magnetic Fields. (T/E) E. Z. Meilikhov – 191 [237]
Theory of a Surface Oscillistor. (T) I. A. Gilinskii – 313 [377]
Instability of the Current in n-Type Nickel-Doped Germanium Subjected to Strong Electric Fields. (E) L. A. Klimka, S. P. Kal'venas, and Yu. K. Pozhela – 343 [407]
Suppression of a Helical Instability in a Semiconductor Plasma in Strong Magnetic Fields. (E/T) Yu. I. Tsipivka, G. F. Karavaev, and I. M. Vikulin – 423 [508]
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Forced Oscillations of a Static Domain. (E) V. L. Shushkevich, O. G. Mishnev, and L. L. Lyuze – 768 [908]
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10.1. Electron Paramagnetic and Diamagnetic Resonance

Nature of a Singularity at the Resonance Frequency and the Line Shape of Cyclotron Resonance in Semiconductors. (T) É. A. Kaner, O. I. Lyubimov, I. E. Aronov, and R. I. Shekhter – 43 [57]
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Determination of the Impurity Concentration in Germanium from Cyclotron Resonance. (E) L. E. Blagosklonskaya, E. M. Gershenzon, and Yu. P. Ladyzhinskii – 1007 [1187]
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Effect of Electric Fields in the Paramagnetic Resonance of Deep Centers. (E) V. K. Bazhenov, V. A. Presnov, and S. P. Fedotov – 2038 [2371]

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Influence of a Magnetic Field on Carriers Generated in a High-Field Domain under Impact Ionization Conditions in a Gunn Diode. (E) É. D. Prokhorov and V. A. Shalaev – 1707 [1993]

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Optical Charge Exchange and Thermal Stimulation in Fe-Doped GaAs. (E/T) É. M. Omel'yanovskii, N. M. Pavlov, N. N. Solov'ev and V. I. Fistul' – 439 [527]
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Influence of Trapping Centers on the Temperature Dependences of the Photocurrent and Luminescence of Cadmium Sulfide Single Crystals. (E) N. V. Malushin and V. V. Serdyuk – 1597 [1861]
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11.1. Photoelectric Effects

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Photoelectret State in Semiconductors with p-n Junctions. (E) É. I. Adirovich – 629 [745]
Photomemory of Surface-Barrier Junctions in Cadmium Telluride. (E) V. P. Karpenko, P. G. Kasherininov, and O. A. Matveev – 794 [937]
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Theory of the Photoelectric and Photomagnetic Effects due to the Photon Momentum in the Case of the Photoionization of Impurity Centers in Semiconductors. (T) A. A. Grinberg and L. L. Makovskii – 981 [1162]
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Influence of Recombination Processes in the Space-Charge Region on the Photoconductivity Spectrum of a Heterostructure. (T) M. B. Kagan and T. L. Lyubashevskaya – 1217 [1421]
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Structure of Photosensitivity Centers in CdS Crystals. (E) A. V. Lyubchenko – 1368 [1593]
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Some Features of Photoelectric Processes in S-Type Diodes. (E) V. N. Dul'dier and V. A. Petrusevich – 1429 [1662]
Some Features of the Photomagnetic Effect and Photoconductivity of n-Type InSb Associated with Electron Heating by Radiation. (E) E. K. Guseinov, D. N. Nasledov, Yu. G. Popov, and M. Schleifstein – 1451 [1689]
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11.1.1. Photoconductivity and photo-emf

Influence of Pressure on the Electrical and Photoelectric Properties of Amorphous and Single-Crystal Samples of As_2Se_3. (E) B. T. Kolomiets and E. M. Raspopova – 124 [157]
Optical and Photoelectric Properties of Thin Films of the Orthorhombic Modification of PbO. (E) N. L. Kramarenko, V. K. Miloslavskii, and L. M. Miroshnichenko – 183 [287]
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Negative Intrinsic and Impurity Photoconductivity of ZnTe–CdTe Crystals. (E) G. M. Grigorovich and M. A. Ruvinskii – 290 [355]
Impurity Photoconductivity of Gallium Arsenide Crystals. (E) N. M. Kolchanova, D. N. Nasledov, M. A. Mirdzhalilova, and V. Yu. Ibragimov – 294 [358]
Influence of an Electric Field on the Photoconductivity Spectrum of Germanium with Hydrogen-Like Impurities. (T/E) L. V. Berman and A. G. Zhukov – 337 [401]
Photomagnetic Effect and Photoconductivity in the Presence of Hot Electrons. (E) S. D. Lazarev, G. A. Shepel'skii, and G. D. Efremova – 354 [419]
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Investigation of the Photovoltaic Properties of Epitaxial Films of Zinc Telluride. (E) V. A. Ignatyuk and F. T. Novik – 394 [472]
Influence of an Electric Field and Illumination on the Characteristics of the Photoconductivity Kinetics of Lead Monoxide Films. (E) O. K. Gasanov, V. A. Izvozchikov, V. A. Kozlov, and O. A. Timofeev – 462 [558]
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Spectral Photosensitivity of Inhomogeneous Semiconductors. (E/T) V. G. Kustov, V. P. Orlov, V. A. Presnov, and B. S. Azikov – 567 [669]
Some Features of the Photoconductivity Spectrum of Germanium in the Fundamental Absorption Region. (E) V. G. Pan'kin, A. V. Rzhanov, and K. K. Svitashev – 575 [679]
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Appearance of a Transverse Photo-emf under the Action of Unpolarized Radiation. (T) Yu. S. Gal'pern and Sh. M. Kogan – 686 [806]
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Some Features of the Photoconductivity of ZnTe Crystals under Combined Excitation Conditions. (E) V. V. Makarenko and V. V. Rybalka – 847 [989]
Impurity Photo-Emf of GaP p-n Junctions. (E) M. N. Ikizli, D. N. Nasledov, and S. V. Slobodchikov – 859 [1000]
Hopping Photoconductivity in Germanium. High Excitation Level, Influence of Additional Compensation, Excitation with Impurity-Absorbed Light. (E) V. P. Dobrego – 863 [1005]
Features of the Photoconductivity Spectra of p-Type Si Irradiated with Fast Electrons. (E) I. P. Akimchenko, V. S. Vavilov, and A. F. Plotnikov – 873 [1020]
Field Effect in the Photoconductivity of Thin Semiconductor Films. (T) V. G. Baru – 1009 [1189]
Photoconductivity and Thermal Transitions of Carriers in Amorphous and Single-Crystal Samples of As_2Se_3. (E) B. T. Kolomiets and E. M. Raspopova – 1041 [1226]
Photoconductivity and Luminescence of Gallium Selenide under Two-Photon Excitation Conditions. (E) G. B. Abdullaev, M. Kh. Alieva, B. R. Mirzoev, S. M. Ryvkin, V. M. Salmanov, and I. D. Yaroshetskii – 1187 [1393]
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11.1.2. Semiconductor photography

Use of Semiconductors in Long-Wavelength Photography. (E) L. G. Paritskii and S. M. Ryvkin – 645 [764]
Influence of Noise on the Operation of a Semiconductor Photodetector under Photographic Conditions. (T) B. V. Novogrudskii, L. G. Paritskii, and S. M. Ryvkin – 1259 [1472]
Photographic Process Based on Oxidation-Reduction Reactions on Thin Films of Lead Sulfide and Selenide. (E) D. N. Goryachev, L. G. Paritskii, and S. M. Ryvkin – 1354 [1580]
Photographic Process Based on Oxidation-Reduction Reactions on the Surface of Silicon. (E) D. N. Goryachev, I. G. Paritskii, and S. M. Ryvkin – 1356 [1582]

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Methods for Investigating a Semiconductor Photodetector under Photographic Conditions. (E) G. B. Gorlin, Zh. G. Dokholyan, B. V. Novogrudskii, and P. G. Paritskii – 1525 [1779]
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A Measure of Image Contrast in Semiconductor Photography. (T) L. G. Paritskii and V. B. Yarzhembitskii – 1579 [1838]
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Some Problems in the Phenomenological Theory of Electrophotoconductography. (T) L. G. Paritskii – 2078 [2411]

11.2. Recombination Processes

Recombination of Free Carriers at Group III and V Impurities in Germanium. (E) S. A. Kaufman, K. M. Kulikov, and N. P. Likhtman – 102 [129]
Recombination of Nonequilibrium Carriers in p-Type InSb at Temperatures below 77°K. (E) É. K. Guseinov, D. N. Nasledov, A. V. Pentsov, and Yu. G. Popov – 142 [179]
Kinetics of Nonequilibrium Conductivity in Gold-Doped Germanium at Low Temperatures. (E) M. Vrana and I. A. Kurova – 165 [208]
Lifetime of Carriers in Iron-Doped Indium Antimonide. (E) G. V. Il'menkov, D. N. Nasledov, and Yu. S. Smetannikova – 496 [593]
Recombination of Hot Electrons at Nickel Atoms in Germanium. (E) L. A. Klimka and K. D. Glinchuk – 571 [673]
Influence of Thermal Defects on the Lifetime of Carriers in Germanium. (E) B. I. Boltaks and L. F. Konorova – 636 [754]
Statistical Theory of the Exciton Recombination of Electrons and Holes in Semiconductors. (T) V. V. Evstropov and B. V. Tsarenkov – 782 [923]
Localization of Trapping Centers in Lead Sulfide Photoresistors. (E) V. N. Vinchakov – 813 [955]
Cascade Capture of Electrons by Impurity Centers in Piezoelectric Semiconductors. (T) E. P. Pokatilov and M. M. Rusanov – 815 [957]
Some Features of the Measurement of Carrier Lifetime by the Injection-Extraction Method. (E/T) B. V. Novogrudskii, N. B. Strokan, and A. Kh. Khusainov – 927 [1094]
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Carrier Lifetime in Gallium Arsenide Counters. (E) V. F. Afanas'ev – 1171 [1378]
Recombination Properties of n- and p-Type Germanium Irradiated with 660 MeV Protons. (E) V. A. Evseev, R. F. Konopleva, and A. A. Yuferev – 1323 [1549]
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Influence of an Electric Field on Recombination in Ge Doped with Deep Impurities. (T/E) A. P. Katsitadze, Z. S. Kachlishvili, and V. A. Morozova – 1486 [1732]

11.2.1. Radiative recombination

Cathodoluminescence of Gallium Arsenide. (E) L. N. Kubatov, N. N. Mochalkin, and A. D. Britov – 47 [62]
Temperature Dependence of the Emission of Coherent Radiation by PbS. (E) L. N. Kurbatov, A. D. Britov, and N. N. Mochalkin – 95 [120]
Optical and Luminescence Properties of Single Crystals of $In_xGa_{1-x}As$ Solid Solutions. (E) Yu. M. Burdukov, N. V. Zotova, and Kh. A. Khalilov – 138 [174]
Photoluminescence of GaAs Diodes Excited by Laser Radiation. (E) Yu. A. Bykovskii, V. L. Velichanskii, I. G. Goncharov, and V. A. Maslov – 168 [211]
Characteristic Features of the Energy Spectrum of GaAs Crystals Grown in an Oxygen Atomosphere. (E) N. M. Kolchanova, G. N. Talalakin, and E. A. Kretova – 174 [217]
Influence of a Heating Electric Field on the Edge Luminescence of Gallium Arsenide. (E) Yu. L. Ivanov and T. Risbaev – 301 [365]
Efficiency of the Recombination Radiation of Germanium Illuminated with a Ruby Laser. (E) E. A. Bobrova and G. N. Galkin – 304 [368]
Photoluminescence and Absorption by Vacancy-Donor Complexes in CdTe. (E) N. V. Agrinskaya, E. N. Arkad'eva, and O. A. Matveev – 347 [412]
Edge Luminescence of CdS. (E/T) N. N. Gerasimenko, A. V. Dvurechenskii, and L. N. Safronov – 399 [478]
Recombination Radiation of the Condensed Phase of Nonequilibrium Carriers in Germanium. (E/T) Ya. E. Pokrovskii and K. I. Svistunova – 409 [491]
Excitation and Photoluminescence Spectra of GaS_xSe_{1-x} Crystals. (E) M. I. Karaman and V. P. Mushinskii – 464 [560]
Quenching of the "Edge" Cathodoluminescence of ZnS by Infrared Radiation. (E) V. L. Levshin, Yu. V. Voronov, and Yu. P. Timofeev – 503 [601]
Photoluminescence of Epitaxial Films of $Al_xGa_{1-x}As$ Solid Solutions. (E) Zh. I. Alferov and O. A. Ninua – 519 [618]
Photoluminescence of Gallium Antimonide Doped with Tellurium. (E) I. K. Lazareva and V. M. Stuchebnikov – 550 [649]
Influence of Infrared Radiation on Interimpurity Radiative Recombination in Gallium Phosphide. (E) V. G. Galvoron and V. I. Sidorov – 595 [702]
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Effect of the State of the Surface of Germanium on Its Recombination Radiation. (E) E. S. Rzhanova – 790 [933]
Photoluminescence-Based Investigation of Inhomogeneities in Gallium Arsenide and Gallium Arsenophosphide. (E) D. I. Arnol'd, V. D. Bakumenko, M. N. Zargar'yants, and E. I. Gamolin – 863 [1005]
Estimates of the Parameters of Centers of Hole and Electron Localization from the Quenching and Enhancing Effects of Infrared Radiation. (E) M. V. Fok – 865 [1009]
Thermoluminescence of n-Type GaP Crystals. (E) I. S. Gorban', V. V. Lugovskii, and A. V. Slobodyanyuk – 1003 [1182]
Profile of an Exciton Luminescence Band Associated with an Excited Exciton State. (T) D. S. Bulyanitsa – 1081 [1273]
Influence of Compensation on Radiative Recombination in n- and p-Type GaAs. (E) Zh. I. Alferov, V. M. Andreev, D. Z. Garbuzov, E. P. Morozov, and V. G. Trofim – 1089 [1282]
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Photoconductivity and Luminescence of Gallium Selenide under Two-Photon Excitation Conditions. (E) G. B. Abdullaev, M. Kh. Alieva, B. R. Mirzoev, S. M. Ryvkin, V. M. Salmanov, and I. D. Yaroshetskii – 1187 [1393]
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Thermoluminescence Spectra and Optical Charge Exchange in Silicon Carbide. (E) L. N. Ganyuk, I. S. Gorban', Yu. A. Marazuev, and A. V. Slobodyanyuk – 1550 [1803]
Recombination Radiation of Hot Carriers in Silicon and Germanium. (E) A. S. Kaminskii, Ya. E. Pokrovskii, and K. I. Svistunova – 1625 [1896]
Photoluminescence of n-Type InAs. (E) O. A. Allaberenov, N. V. Zotova, D. N. Nasledov, and L. D. Neumina – 1662 [1939]
Luminescence of Zn–In–S Single Crystals. (E) I. A. Damaskin, F. G. Donika, I. G. Mustya, S. L. Pyshkin, and S. I. Radautsan – 1723 [2009]
Investigation of Superluminescence Emitted by a Gallium Arsenide Diode. (E) L. N. Kurbatov, S. S. Shakhidzhanov, L. V. Bystrova, V. V. Krapukhin, and S. I. Kolonenkova – 1739 [2025]
Galvanoluminescence of n-Type Gallium Arsenide. (E) B. A. Bobylev, A. F. Kravchenko, Yu. V. Loburets, and S. N. Salomon – 1765 [2054]
Temperature Dependence of the Edge Photoluminescence of n-Type GaAs. (E) A. T. Gorelenok, V. B. Tsarenkov, and N. G. Chiabrishvili – 1775 [2064]
Exciton Absorption and Luminescence of Tetragonal HgI_2 at Low Temperatures. (E) B. V. Novikov and M. M. Pimonenko – 1785 [2077]
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Investigation of the Uniformity of the Distribution of the Luminescence Centers in a Semiconductor Surface Layer. (E/T) G. P. Peka and M. K. Sheinkman – 1831 [2133]
Fine Structure of the Photoluminescence Spectra of Bismuth-Doped Gallium Phosphide. (E) A. V. Beloglazov, R. Bindemann, V. M. Grachev, L. I. Marina and A. É. Yunovich – 1876 [2186]
Exciton Absorption and Luminescence in Ag_2O. (E) F. I. Kreingol'd and B. S. Kulinkin – 2022 [2353]
Quantum Efficiency of the Red Luminescence of Gallium Phosphide. (E) A. M. Zykov, I. V. Saenko, and B. E. Samorukov – 2044 [2375]
Characteristics of Radiative Recombination in Indium Antimonide Subjected to a Magnetic Field. (E) E. S. Filatova and V. M. Yagodkin – 2061 [2391]
Recombination Radiation Associated with the Interaction of Carriers in a Quantizing Magnetic Field. (E) A. A. Kastal'skii, S. M. Ryvkin, E. S. Filatova, and V. M. Yagodkin – 2063 [2393]

11.2.1.1. Electroluminescence

Recombination Radiation Emitted by p-n $Ge_{0.86}(GaAs)_{0.15}$ – GaAs Heterojunctions. (E) P. S. Kireev, L. V. Koval'chuk and É. A. Matson – 183 [227]
Electroluminescence of $Al_xGa_{1-x}As$–GaAs Heterojunctions under Avalanche Breakdown Conditions. (E) Zh. I. Alferov and O. A. Ninua – 296 [360]
Electroluminescence Spectra of Thin Films of PbS. (E) V. G. Bushkevich and I. A. Drozd – 527 [625]
Influence of a Deviation from Neutrality on the Electroluminescence of ZnS Single Crystals. (E) Yu. I. Gokhfel'd, G. M. Guro, V. T. Dakhnovets, and N. F. Kovtonyuk – 651 [772]
Electroluminescence of Layered GaS_xSe_{1-x} and $GaSe_xTe_{1-x}$ Crystals. (E) M. I. Karaman and V. P. Mushinskii – 662 [783]
An Investigation of the Mechanism of Degradation of GaAs Electroluminescent Diodes. (E) V. P. Sushkov and L. A. Shchepetilova – 667 [788]
Exciton Mechanism of a Short-Wavelength Electroluminescence Peak of Gallium Selenide. (E) G. A. Akhundov and A. G. Bagirov – 805 [948]
Injection Electroluminescence of Anthracene. (E) M. I. Brodzeli, I. A. Eliguashvili, É. L. Kertsman, G. A. Nakashidze, and L. D. Rozenshtein – 811 [954]
Photosensitivity Spectra and Electroluminescence of GaAs–$In_xGa_{1-x}As$ p-n Heterojunctions. (E) Ya. A. Fedotov, A. I. Gratsershtein, and N. S. Zimogorova – 838 [980]
Recombination Radiation Emitted by ZnSe–ZnTe Heterostructures. (E) K. K. Dubenskii, A. V. Rumyantseva, Yu. S. Ryzhkin, and V. I. Trapeznikov – 845 [986]
Investigation of the Influence of Oxygen on the Intensity of Red Luminescence of Gallium Phosphide. (E) V. M. Grachev, L. I. Marina, and É. A. Tvirova – 863 [1006]
Luminescent Diode Based on a p-n ZnTe–CdSe Heterojunction. (E) A. V. Vanyukov, A. N. Kovalev, N. M. Kondaurov, V. A. Supalov, and Ya. A. Fedotov – 1157 [1365]
Investigation of Electroluminescence Transients in p-n Junctions Prepared from Be- and Se-Doped SiC. (E) A. A. Kal'nin, V. V. Pasynkov, Yu. M. Tairov, and D. A. Yas'kov – 1254 [1467]
Quantum Efficiency of Radiative Recombination in p-n Junctions Made of Gallium Antimonide. (E) V. S. Vavilov, N. V. Kravchenko, M. S. Mirgalovskaya, I. A. Strel'nikova, and A. É. Yunovich – 1343 [1569]
Electroluminescent Diode with a Flat Surface Emitting Continuously 25 $W \cdot cm^{-2} \cdot sr^{-1}$ at 300°K. (E) M. N. Zargar'yants, Yu. S. Mezin, and S. I. Kolonenkova – 1371 [1596]
Polarization of the Recombination Radiation Emitted by Heavily Doped p-n Junctions in GaAs. (E) V. M. Lomako, A. M. Novoselov, and V. D. Tkachev – 1563 [1817]
Photoluminescence and Electroluminescence of $In_xGa_{1-x}As$ Solid Solutions. (E) Yu. M. Burdukov, N. V. Zotova, D. N. Nasledov, and É. E. Strakhilevich – 1633 [1906]
An Investigation of the Red Luminescence of Epitaxial Gallium Phosphide Electroluminescent Diodes. (E) V. I. Shopen – 1711 [1997]
Exciton Electroluminescence in Cu_2O Crystals. (E) F. I. Kreingol'd and V. M. Fokin – 1888 [2198]
Mechanism of Radiative Recombination in p-n Junctions in Heavily Doped GaAs. (E/T) V. L. Litvinov, V. M. Lomako, V. D. Tkachev, and N. A. Ukhin – 1928 [2236]
Investigation of Electroluminescence of p-n Junctions in Silicon Carbide Fabricated by Successive Diffusion of Aluminum and Boron. (E) V. I. Pavlichenko and I. V. Ryzhikov – 2078 [2409]
Investigation of Double Injectiona and of Electroluminescence of p-i-n Structures Made of Aluminum-Doped Silicon Carbide. (E) V. I. Pavlichenko, I. V. Ryzhikov, and O. R. Abdullaev – 2078 [2410]

11.2.2. Stimulated emission and semiconductor lasers

Spectral Characteristics and Directionality of a Semiconductor Laser with an External Mirror. (E) O. V. Bogdankevich, B. I. Vasil'ev, A. S. Nastbov, A. N. Pechenov, and K. P. Fedoseev – 22 [29]
Compound Resonator for Semiconductor Lasers. (T) Yu. M. Popov and N. N. Shuikin – 34 [45]
Temperature Dependence of the Optical Gain in Injection Lasers. I. (T) P. G. Eliseev – 39 [51]
Some Properties of Injection Lasers Utilizing an Electron-Hole Plasma in Indium Antimonide. (E) A. P. Shotov and R. A. Muminov – 115 [145]
Tuning the Coherent Radiation Frequency of Indium Antimonide by a Magnetic Field. (E) I. I. Zasavitskii, B. N. Matsionashvili, and A. P. Shotov – 274 [337]
Influence of Waveguide Properties of a p-n Junction on the Coherent Emission of Gallium Arsenide Laser Diodes. (T/E) R. G. Allakhverdyan, A. N. Oraevskii, and A. F. Suchkov – 277 [341]

Influence of Waveguide Properties of a p-n Junction on the Coherent Emission of Gallium Arsenide Laser Diodes. (T/E) R. G. Allakhverdyan, A. N. Oraevskii, and A. F. Suchkov – 277 [341]
Threshold Current of an Injection Laser with a p-n Heterojunction. (T) A. I. Gubanov and B. N. Sharapov – 367 [433]
Effect of Temperature on the Stimulated Radiation of ZnS_xCdS_{1-x} Crystals in the Case of Two-Photon Excitation. (E) M. S. Brodin, P. I. Budnik, N. I. Vitrikhovskii, and S. V. Zakrevskii – 435 [522]
Semiconductor Laser with Local Mirrors. (E) A. S. Dobkin, V. V. Kokorev, G. A. Lapitskaya, A. A. Pleshkov, O. N. Prozorov, L. A. Rivlin, G. A. Sukhareva, V. S. Shil'dyaev, and S. D. Yakubovich – 515 [613]
Theory of Laser Emission Using Indirect Magneto-Optical Transitions with Free-Carrier Participation. (T) G. K. Vlasov and V. S. Mashkevich – 562 [663]
Use of a Fabry-Perot Resonator for the Stabilization of the Frequency of an Injection Laser. (E) Yu. A. Bykovskii, V. L. Velikhanskii, I. G. Goncharov, and V. A. Maslov – 580 [685]
Coherence of the Radiation Emitted by a Semiconductor Laser and Its Use in Holography. (E) Yu. A. Bykovskii, V. A. Elkhov, and A. I. Larkin – 819 [962]
Threshold Currents of Injection Lasers with One and Two Heterojunctions. (T) B. N. Sharapov – 948 [1121]
Properties of PbSe Laser Diodes at 77°K. (E) S. P. Chashchin, N. S. Baryshev, I. S. Averyanov, and N. P. Markina – 989 [1170]
Microwave Synchronization of the Pulsed Emission of a Semiconductor Laser. (E) I. S. Goldobin, A. A. Pleshkov, L. A. Rivlin, A. T. Semenov, and V. G. Trukhan – 1021 [1201]
Influence of Irradiation on the Principal Characteristics of a Gallium Arsenide Laser Excited with an Electron Beam. (E) O. V. Bogdankevich, V. S. Vavilov, V. A. Danilychev, V. V. Kalendin, and I. V. Kryukova – 1027 [1209]
Relationship between the Photoluminescence Properties of Gallium Arsenide Single Crystals and the Emission Characteristics of Semiconductor Lasers. (E) I. V. Akimova, L. N. Borovich, O. V. Bogdankevich, A. V. Dudenkova, Yu. P. Zakharov, Yu. M. Popov, A. N. Pechenov, and K. P. Fedoseev – 1142 [1346]
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Effect of Charged Impurities on the Electron Spectrum of a Semiconductor in a Strong Electromagnetic Field. (T) V. F. Elesin – 1302 [1524]
Properties of PbS Laser Diodes at 77°K. (E) S. P. Chashchin, N. S. Baryshev, I. S. Aver'yanov, and N. P. Markina – 1320 [1546]
Threshold Current of a Heterojunction Laser. (T) V. B. Khalfin – 1414 [1644]
Spatial Distribution of the Radiation Emitted by AlAs–GaAs Heterojunction Injection Lasers at Room Temperature. (E) Zh. I. Alferov, V. M. Andreev, F. A. Gimmel'farb, L. M. Dolginov, Yu. A. Zhitkov, L. D. Libov, E. L. Portnoi, V. G. Trofim, M. K. Trukan, and E. G. Shevchenko – 1457 [1697]
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Stimulated Recombination Radiation Emitted by PbS_xSe_{1-x} Diodes. (E) S. P. Chashchin, I. S. Aver'yanov, and N. S. Baryshev – 1538 [1794]
Investigation of the Influence of the AlAs–GaAs Heterostructure Parameters on the Laser Threshold Current and the Realization of Continuous Emission at Room Temperature. (E) Zh. I. Alferov, V. M. Andreev, D. Z. Garbuzov, Yu. V. Zhilyaev, E. P. Morozov, E. L. Portnoi, and V. G. Trofim – 1573 [1826]
Saturation of the Gain in Semiconductor Lasers and Amplifiers. (T) V. Yu. Nikitina and I. A. Poluéktova – 1578 [1834]
Injection Heterolaser Operating at 163°C. (E) Zh. I. Alferov, V. M. Andreev, P. G. Eliseev, I. Z. Pinsker, and E. L. Portnoi – 2057 [2388]
Possible Polarization of the Radiation Emitted by a Semiconductor p-n Heterojunction Laser. (T) B. N. Sharapov – 2059 [2389]

11.3. Hot Electrons

Influence of the State of the Surface and Illumination on the Phenomena Observed in Gold-Doped Germanium Subjected to Strong Electric Fields. (E) I. Z. Karimova and V. I. Stafeev – 171 [213]
Influence of a Heating Electric Field on the Edge Luminescence of Gallium Arsenide. (E) Yu. L. Ivanov and T. Risbaev – 301 [365]
Instability of the Current in n-Type Nickel-Doped Germanium Subjected to Strong Electric Fields. (E) L. A. Klimka, S. P. Kal'venas, and Yu. K. Pozhela – 343 [407]
Photomagnetic Effect and Photoconductivity in the Presence of Hot Electrons. (E) S. D. Lazarev, G. A. Shepel'skii, and G. D. Efremova – 354 [419]
Quenching of the Photoconductivity in Strong Electric Fields. (E) L. A. Klimka and K. D. Glinchuk – 490 [587]
Anisotropy of the Microwave Faraday Rotation in n-Type Ge Subjected to Strong Electric Fields. (E) S. N. Baranovskii, D. D. Berezikov, B. B. Gorlov, and A. M. Pogorel'skii – 492 [589]
Dependence of the Electrical Conductivity of Semiconductors on the Angle between Electric and Magnetic Fields Capable of Heating Electrons and Phonons. (T) T. M. Gasymov – 508 [606]
Recombination of Hot Electrons at Nickel Atoms in Germanium. (E) L. A. Klimka and K. D. Glinchuk – 571 [673]
Heating of Phonons in a Strong Magnetic Field. (T) T. M. Gasymov – 620 [733]
An Investigation of the Microwave Faraday Effect due to Hot Electrons. (E) D. D. Berezikov, A. M. Pogorel'skii, and S. N. Baranovskii – 657 [779]
Anisotropy of the Conductivity and Intervally Transfer in Doped Semiconductors at Low Temperatures. (T) V. A. Kochelap and V. V. Mitin – 896 [1051]
Influence of a Strong Magnetic Field on the Heating of Electrons in n-Type Ge. (E/T) V. G. Veselago, M. V. Glushkov, Yu. S. Leonov, and A. P. Shotov – 1262 [1476]
Recombination of Hot Holes at Nickel Ions in Germanium. (E) L. A. Klimka and K. D. Glinchuk – 1361 [1586]
Photoelectric Gain in Strong Electric Fields. (E) L. G. Paritskii and V. B. Yarzhembitskii – 1579 [1836]
Recombination Radiation of Hot Carriers in Silicon and Germanium. (E) A. S. Kaminskii, Ya. E. Pokrovskii, and K. I. Svistunova – 1625 [1896]

11.4. Electrical Breakdown

Ionization Mechanisms of Shallow Donor Impurity Centers in Semiconductors in an External Electric Field with Allowance for Plasma Screening. (T) P. K. Katana, S. D. Tiron, and A. G. Cheban – 210 [260]
Electroluminescence of $Al_xGa_{1-x}As$–GaAs Heterojunctions under Avalanche Breakdown Conditions. (E) Zh. I. Alferov and O. A. Ninua – 296 [360]
Growth of the Number of Switched-on Microplasmas in Silicon Avalanche Diodes. (E) I. V. Grekhov and Yu. N. Serezhkin – 513 [611]
Investigation of Oscillations Associated with Induced Impurity Breakdown. (E) A. K. Pustovoit – 916 [1079]
Influence of the Nature of Breakdown on the High-Frequency Admittance of p-n Junctions. (T/E) V. K. Aladinskii and P. G. Gradinarov – 1126 [1328]
Relationship between the Defects in Silicon and the Avalanche Breakdown of p-n Junctions. (E) Yu. A. Evseev, I. N. Magden, A. E. Radechko, and V. E. Chelnokov – 1226 [1432]
Influence of a Magnetic Field on Impact Ionization in Covalent Semiconductors with Ellipsoidal Constant-Energy Surfaces. (T) V. A. Chuenkov – 1433 [1667]
Injection Breakdown in High-Resistivity Gallium Arsenide Doped with Iron and Chromium. (E/T) R. F. Kazarinov, N. I. Lukicheva, É. M. Omel'yanovskii, L. Ya. Pervova, and R. A. Suris – 1440 [1677]

Threshold Energies of the Impact Ionization and of the Increase in the Quantum Efficiency of the Photoconductivity in InSb-Type Degenerate Semiconductors. (T) A. S. Volkov, A. A. Gutkin, and S. E. Kumekov – 1593 [1856]
Impact Ionization in Compensated High-Resistivity p-Type InSb. (E) Sh. M. Mirianashvili and D. I. Nanobashvili – 1606 [1872]
Scattering of Holes in p-Type Germanium under Impact Ionization Conditions. (E) D. A. Kichigin and V. P. Lobachev – 1619 [1888]
An Estimate of the Effect of a Redistribution of Impurities near SiO_3 Particles on the Occurrence of Microplasma Breakdown of p-n Junctions in Silicon. (E/T) V. V. Batavin – 1666 [1943]
Delay of Microplasma Breakdown in High-Voltage p-n Junctions in Silicon. (E) P. V. Akimov, I. V. Grekhov, and Yu. N. Serezhkin – 1802 [2099]
Influence of the Screening of the Impurity Potential on the Current-Voltage Characteristic of a Semiconductor under Impurity Breakdown Conditions. (T) A. N. Zaitsev, A. K. Zvezdin, and V. V. Osipov – 1941 [2253]

11.5. Noise

Influence of Dislocations on the Excess Noise of Surface-Barrier Gold–Silicon Junctions. (E) V. F. Afanas'ev – 99 [125]
Noise in Silicon Impatt Diodes. (E) N. N. Armencha and D. V. Tarkhin – 321 [385]
Some Effects Associated with Amplification of "Oblique" Acoustic Noise in CdS. (E) V. K. Komar' and B. L. Timan – 407 [488]
Noise Oscillations of the Current in S-Type Diodes Made of Cadmium-Compensated Silicon. (E) V. A. Dushkin, B. Ya. Kovarskii, V. I. Murygin, V. V. Rakitin, and V. I. Stafeev – 1076 [1267]
Thermal Noise Anomalies in $Cd_xHg_{1-x}Te$ Solid Solutions. (E) P. S. Kireev and V. P. Saperov – 1390 [1614]
Microplasma Noise at Low Temperatures. (E) N. N. Armencha and D. V. Tarkhin – 1500 [1750]
Noise Properties of Diode Structures Made of Chromium-Compensated Gallium Arsenide. (E) V. A. Dushkin, G. A. Egiazaryan, V. I. Murygin, and V. I. Stafeev – 1504 [1755]
Shot Noise in Schottky Diodes. (T) V. I. Strikha – 1705 [1991]

12. PHYSICS OF CONTACT PHENOMENA

Field Effect at the Contact between a Semiconductor and a c-Domain Ferroelectric. (T) B. M. Vul, G. M. Guro, and I. I. Ivanchik – 128 [162]
Influence of the Electric Field in the Space-Charge Layer of a Contact between Au and n-Type GaAs on the Contact Photosensitivity near the Fundamental Absorption Edge. (E) A. A. Gutkin, M. V. Dmitriev, and D. N. Nasledov – 229 [282]
Photoelectret State in Semiconductors with p-n Junctions. (E) É. I. Adirovich – 629 [745]
Anomalous Barrier Capacitance of Semiconductors with a Short Mean Free Path. (T/E) Yu. D. Pankov – 836 [978]
Effect of a Longitudinal Magnetic Field on the Density of Carriers in Semiconductor Diodes. (T/E) V. I. Gaman and V. M. Kalygina – 1285 [1504]
Photographic Process Based on the Photoelectric Action of a Surface-Barrier Junction in Silicon. (E) Zh. G. Dokholyan, L. G. Paritskii, and S. M. Ryvkin – 1377 [1602]
Methods for Investigating a Semiconductor Photodetector under Photographic Conditions. (E) G. B. Gorlin, Zh. G. Dokholyan, B. V. Novogrudskii, and P. G. Paritskii – 1525 [1779]
Resistance of Ohmic Contacts between Metals and Semiconductor Films. (T) V. Ya. Niskov and G. A. Kubetskii – 1553 [1806]
Motion of a Current Filament in a Magnetic Field. (E) A. P. Boltaev and I. V. Varlamov – 1629 [1901]
Frequency-Contrast Characteristic of a Semiconductor Photographic System with a p-n Junction. (T) A. A. Grinberg, N. I. Kramer, L. G. Paritskii, and L. V. Udod – 1640 [1913]
Electrical Properties of Junctions Formed by Impurities with Deep Levels. (T) R. F. Kazarinov, R. A. Suris, and A. V. Shenkerman – 1794 [2088]
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12.1. Theory of p-n Junctions

Determination of the Electric Field in a p-n Junction from Capacitance Measurements. (T) L. S. Berman – 511 [609]
Current Filamentation in a Long Diode. (T) V. V. Osipov and V. A. Kholodnov – 1033 [1216]
Thermal Equilibrium in a Thin-Base p-n Junction. (T) É. I. Vaikhbrot and V. L. Vodkin – 1210 [1414]
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A p-n Junction under Steady-State Conditions. É. I. Vaikhbrot and V. L. Vodkin – 1578 [1832]
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Theory of Diodes with Radiative and Nonradiative Impurity Recombination. (T) V. V. Osipov and V. A. Kholodnov – 1932 [2241]

12.2. Experimental Investigations of p-n Junctions

Junctions in GaAs Prepared by the Diffusion of Sulfur. (E) A. A. Gutkin, D. N. Nasledov, and V. E. Sedov – 17 [23]
Influence of Dislocations on the Excess Noise of Surface-Barrier Gold-Silicon Junctions. (E) V. F. Afanas'ev – 99 [125]
Influence of Back Diffusion of Acceptors on the Structure of Diffused p-n Junctions in Silicon Carbide. (E/T) É. E. Violin, V. V. Kovan'ko, and G. F. Kholuyanov – 184 [231]
Dependence of the Current-Voltage Characteristics of a Tunnel Diode on the Fermi Levels in the n- and p-Type Regions. (T) B. M. Vul, É. I. Zavaritskaya, and I. I. Ivanchik – 268 [329]
Dependence of the Current-Brightness Characteristics of Diffused p-n Junctions in Silicon Carbide on the Excitation Level and Temperature. (E) I. V. Kryachko – 356 [421]
Growth of the Number of Switched-On Microplasmas in Silicon Avalanche Diodes. (E) I. V. Grekhov and Yu. N. Serezhkin – 513 [611]
Tunnel Breakdown in SiC p-n Junctions. (E/T) V. K. Aladinskii, E. N. Kuznetsova, V. I. Pavlichenko, and I. V. Ryzhikov – 599 [708]
Influence of SiO_3 Precipitates on the Current-Voltage Characteristics of p-n Junctions in Silicon. (E) V. V. Batavin – 641 [760]
Electrical Properties of Surface-Barrier p-n Junctions in High-Resistivity CdTe. (E) A. P. Bogomazov, V. P. Karpenko, P. G. Kasherininov, O. A. Matveev, and R. S. Stetsyuk – 691 [813]
Temperature Dependences of the Electrical Properties of Tunnel p-n Junctions in InP. (E/T) A. N. Imenkov, N. V. Siukaev, and M. K. Khadikov – 750 [886]
Surface-Barrier Junctions in Gallium Arsenide and the Role of Tamm States in Their Formation. (E/T) A. P. Vyatkin, N. K. Maksimova, A. S. Poplavnoi, V. E. Stepanov, and V. A. Chaldyshev – 775 [915]
Photomemory of Surface-Barrier Junctions in Cadmium Telluride. (E) V. P. Karpenko, P. G. Kasherininov, and O. A. Matveev – 794 [937]
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Temperature Dependence of the Electric Field in Diffused Tunnel p-n Junctions in Gallium Antimonide. (E) V. M. Stuchebnikov and A. É. Yunovich – 840 [982]
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